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**Office Memorandum • UNITED STATES GOVERNMENT**

TO : The Files - Contract 605, T.O.'s 1, 2 and 4      DATE: 28 April 1959

FROM : [redacted]      25X1

SUBJECT: Telecon Report - [redacted]      25X1

1. On 10 April 1959 a telephone call was made to [redacted] of [redacted] to answer several questions which he had asked regarding the work [redacted] is doing for us.

2. One to Ten kmc DF Antenna.

This antenna is being developed in 60 days in response to a verbal SP requirement. [redacted] was informed that the use of a rotary joint for the antenna connection would be acceptable if the performance of the antenna did not suffer as a result of the use of the joint. He assured us that a rotary joint is available costing less than \$200.00 which has a VSWR of less than 2:1 over the range of 1 to 10 kmc. A Styrofoam pyramid will be used to support the log-periodic structures of the antenna. [redacted] said that the proposal for the antenna should be in the week of 16 April 1959. He requested drawings of the antenna mounting assembly to be used with the antenna so that they can design suitable feeds for the system. Since the support is pyramidal in shape and because there is not room in the rotator assembly for the installation of the rotary joint, [redacted] suggests the use of a top plate for the rotator containing a 1:1 gear assembly which will allow the antenna to be offset from the center axis of the rotator. There will be room for the rotary joint if this is done. [redacted] was told that this would be acceptable. Delivery of the antenna is expected by 5 May 1959 with acceptance and pickup at the [redacted] Plant. [redacted] was told that someone would come to Cedar Rapids to pick up the antenna assembly and carry it back.

3. 600 to 10,000 mc Antenna.

[redacted] proposes to use flexible waveguide as a feed line for the higher frequency parabolic antenna covering the range of 6 or 7 to 10 kmc. A rotary joint will be used from 0.6 to 6 kmc. The proposal has been written at [redacted] and is being reviewed before being sent to us.

4. CS-8/AN-20 Antenna.

[redacted] is measuring the characteristics of this antenna from 30 to 55 mc as per our request. [redacted] will treat the antenna in the future as a 30 to 600 mc antenna with degraded performance from 30 to 55 mc and will specify the amount of this degradation along with the rest of the specifications. The testing will take about one week. The CS-8/AN-20 antenna is expected to leave [redacted] in about two weeks for our final acceptance.

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[ ] has almost all of the parts for these antennas and is presently measuring the characteristics of these antennas. The feed assembly has been built and encapsulated. VSWR for the antennas is satisfactory, being at least less than 3.2 to 1 over the entire range of operation. One unilateral sidelobe only 8 to 10 db down has been found. Although our specifications called for only 10 db side-lobe suppression, [ ] feels that they can do better than this and therefore is somewhat hesitant about releasing the antennas at this time. At 6 kmc the gain of the antenna is only about 20% that of the theoretical gain compared to about 60% of the theoretical gain at 2 kmc. [ ] believes that this is due to unevenness in the inflatable bag surface and will try to correct it before sending the antennas. Some delay is expected in delivery because of this.

[ ] feels that perhaps the antenna has been overdesigned mechanically due to the strong requirements which we placed on him as regards wind and ice loading. In any event, one antenna will be shipped shortly for our evaluation while work continues on the other four antennas of Task Order 1, Contract 6C5. Some difficulty is being experienced with the feed line above 3 kmc. [ ] is using semiflexible feedline and finds that is quite unsatisfactory at these frequencies. They would like to use a rotary joint for the antenna system pending our approval.

6. Parabolic Reflectors and Feeds.

[ ] stated that the antennas are essentially completed and that checks on their pattern range indicate that the patterns and sidelobe suppression meet our specifications. Delivery of the antennas is expected shortly, although [ ] did not commit himself to a firm date.

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